DIAGNOSES OF NEW SPECIES OF MARINE BIVALVE MOLLUSKS FROM THE NORTHWEST COAST OF AMERICA IN THE COLLECTION OF THE UNITED STATES NATIONAL MUSEUM.

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Having in preparation a check list of the bivalve mollusks contained in the marine fauna of the region including the coasts from Point Barrow in the Arctic to San Diego, California, it was found that a comparatively large number of the species in the collection of the United States National Museum were undescribed.

To avoid launching into the literature a quantity of manuscript names the present diagnoses have been prepared. It is hoped at no very distant date to furnish fuller data concerning these species, including suitable figures.

In the descriptive matter following, when a station number is given it refers always to the number of a dredging station of the United States Fisheries Steamer *Albatross*. The data relating to these stations have been printed by the Bureau in its Bulletins. Those species not referred to a station number were collected by private persons, including the writer, at various times during the last sixty-five years, one species having been picked up by Major Rich during the Mexican War.

The typical specimens are all preserved in the collection of the United States National Museum. Had the undescribed species belonging to the more southern fauna now in the collection been included, the number would certainly have been greatly increased. These forms, however, are reserved for treatment later.

In the descriptions when the beaks are said to be a certain distance behind the end of the shell, the distance is measured from a vertical line dropped from the umbo to the basal margin, and at the level of the most distant point of the end of the shell referred to. This vertical line indicates the height, the length being measured on a horizontal line parallel with the base of the shell in a general sense. The diameter is the maximum distance from the outside of one valve to the outside of the other, taken at right angles to the vertical plane of the valves. Measurements are all in millimeters.

NUCULA CARDARA, new species.

Shell polished, light olive-green, thin, elongate-oval, with 8 anterior and 18 posterior prominent teeth, the resilifer prominent and largely free from the hingeline, the interior very pearly, the valve-margin smooth, the beaks hardly prominent, situated 5 mm. behind the anterior end of the shell and showing the whitish prodissoconch. Length, 16; height, 11.5; diameter, 8 mm. Cat. No. 265905, U.S.N.M.

Station 5673, in 1090 fathoms, mud, off San Diego, California.

This elegant shell has no sculpture except incremental lines which are hardly visible, but toward the margin become strong at intervals, but without regularity. The periostracum near the beaks becomes dark, and in the closed shell suggests *Malletia*. There is no lunular boundary around the subumbonal depression.

NUCULA DARELLA, new species.

Shell small, inflated, subtriangular, the anterior end slightly shorter; periostracum dark olive, the surface smooth except for somewhat irregular, inconspicuous incremental lines, but under a lens showing faint close radial striae; lunule large, distinctly limited by an impressed line, mesially with a slight pout; about five anterior and eight posterior hinge teeth, the resilifer deep, small, central, not projecting; inner margins of the valves sharply radially grooved; beaks pointed, showing the prodissoconch plainly. Length, 4; height, 3; diameter, 2.7 mm. Cat. No. 111424, U.S.N.M.

Station 2923, 822 fathoms, off San Diego, California.

NUCULA LINKI, new species.

Shell small, inflated, smooth, dark olive, very inequilateral, subtriangular, the anterior end shorter; lunule large, bounded by a faint keel; beaks prominent showing the whitish prodissoconch; six anterior and eleven posterior hinge teeth; valve-margin entire; the resilifer small, deeply set, subumbonal, not projecting. Length, 6; height, 5; diameter, 3.6 mm. Cat. No. 107649, U.S.N.M.

Station 3034, 24 fathoms, mud; off Point Fermin, Lower California.

NUCULA QUIRICA, new species.

Shell small, dark olive inclining to black, polished, with rather rude irregular incremental lines; rounded triangular, the anterior end very short; valves inflated with seven anterior and twelve posterior hinge-teeth, the resilifer narrow, elongated, very oblique, almost parallel with the posterior dorsal margin, hardly projecting; inner margin of the valves entire; beaks prominent showing the prodissoconch, lunule obscure. Length, 8; height, 6; diameter, 3.5 mm. Cat. No. 208727, U.S.N.M.

Chugachik Bay, Cooks Inlet, Alaska, in 60 fathoms, gravelly bottom.

NUCULA PETRIOLA, new species.

Shell minute, ovate, inflated, the form resembling *Crenella columbiana*, the prodissoconch visible on the rather inflated beaks; lunule obscure; color greenish olive, smooth and polished; valve margins smooth, hinge line very short. Length, 1.25; height, 2; diameter, 1.5 mm. Cat. No. 271416, U.S.N.M.

Off Santa Rosa Island, California, in 53 fathoms, mud. The solid shell and inflated form of this minute *Nucula* seem to indicate that it is not an immature shell.

LEDA NAVISA, new species.

Shell elongate, arcuate, inequilateral, with slender recurved rostrum and well-marked smooth impressed escutcheon but no lunule; base convexly arcuate, rostrum obliquely truncate, anterior end evenly rounded; beaks obscure, 5.5 mm. from the anterior end; sculpture of numerous sharp concentric low ridges, with wider flat interspaces, obsolete toward the rostrum; anterior teeth about twelve, posterior about twenty, the resilifer minute, subumbonal, not projecting; interior chalky, a small medial ridge near the end of the rostrum. Height, 7; length, 16; diameter, 5 mm. Cat. No. 208770, U.S.N.M.

Off the Farallones Islands, California, in 191 fathoms, sand; bottom temperature 44°. 5.

LEDA AMIATA, new species.

Shell light olivaceous, elongate, compressed, the posterior dorsal margin nearly straight; beaks low, polished, about 3.5 mm. from the anterior end, showing the whitish prodissoconch; the smooth surface continues for a short distance when the sculpture changes to sharply evenly lamellose with slightly larger interspaces wider on the rostral area which is defined by the angular turn of the lamellae which stop short at the sharp margin of the long impressed escutcheon; interior porcellanous, with twelve anterior and sixteen posterior teeth, the resilifer minute, subumbonal, hardly projecting. Length, 11.3; height, 4.5; diameter, 3.0 mm. Cat. No. 209252, U.S.N.M.

Station 4351, off San Diego, California, in 488 fathoms, muddy bottom. This elegant shell recalls *L. constellata* of the Panama fauna, but the rostrum is more simply sculptured.

LEDA OXIA, new species.

Shell minute, rounded in front, very acute behind, the valve ending in a sharp point; base arcuate, beaks low, subcentral, dorsal slopes nearly straight; sculpture of regular, equal concentric ridges with subequal interspaces, a depressed ray from the beak to the base anteriorly, a deeply impressed, concentrically striated escutcheon bordered by a rounded keel; lunule linear; about eight teeth on either

side of a minute resilifer. Length, 4.5; height, 3; diameter, 1 mm. Cat. No. 214448, U.S.N.M.

Station 2901, off Santa Rosa Island, California, in 48 fathoms, muddy bottom. This species is related to *L. commutata*.

LEDA LIOGONA, new species.

Shell small, light yellowish, concentrically sculptured with prominent elevated ridges with wider interspaces, except on the beaks where the prodissoconch is relatively large and perfectly smooth, the concentric sculpture commencing abruptly; beaks low, and about 3 mm. from the anterior end; base slightly arcuate, dorsal slopes direct, rostrum abruptly truncate; posterior dorsal area with two obscurely elevated rays over which the concentric sculpture is higher, but it becomes reduced to striation upon the strongly impressed escutcheon; teeth much crowded, about twelve posterior and about the same number in front of the minute subumbonal resilifer. Length, 9; height, 5.3; diameter, 3.3 mm. Cat. No. 214089, U.S.N.M.

Station 3604, Bering Sea, in 1401 fathoms, mud.

This species differs from the young of *L. radiata* Krause, by its more conspicuous and regular sculpture and by the absence of radiating threads. It probably attains a larger size.

LEDA FOSSA Baird, 1863.

Variety *sculpta* Dall. This form has regular concentric ripples on the beaks, behind a faint depressed ray near the anterior end and on the keels on either side of the escutcheon. Cat. No. 107688, U.S.N.M.

Station 2855, southeast of Alaska Peninsula, in 66 fathoms, mud.

Variety *vaginata* Dall. This differs from the last in having the concentric sculpture finer and less evident, and spread over the entire shell. Cat. No. 226072, U.S.N.M.

Station 4244, at Kasa-an Bay, Alaska, in 50 fathoms, mud.

Variety *curtulosa* Dall. Shell resembling variety *sculpta* but relatively shorter than that or the typical form. Cat. No. 33771, U.S.N.M.

Unalaska Harbor in 60 fathoms on the Ridge.

LEDA GOMPHOIDEA, new species.

Shell elongate, inequilateral, smooth, polished, the rostrum obliquely rounded-truncate, the anterior side rounded and shorter; beaks small, but pustule like, 5 mm. from the anterior end, the prodissoconch distinct; teeth small and numerous, about 25 in front of and 35 behind the small oblique resilifer; posterior basal and dorsal margins nearly straight, the escutcheon narrow, long, impressed, and striated. Length, 17.5; height, 8; diameter, 4 mm. Cat. No. 212889, U.S.N.M.

Station 3346, off Tillamook Bay, Oregon, in 786 fathoms.

LEDA FIASCONA, new species.

Shell small, subtriangular, rounded, thin, dull olive, the anterior slightly shorter than the posterior end, the base arcuate; the posterior end attenuated, compressed, pointed; sculpture of fine concentric threads, close set and covering the anterior two-thirds of the valves, stopping abruptly at the posterior third where the compression begins; beaks not prominent, a small and narrow lunule and escutcheon indicated; hinge with 8 anterior and about 4 posterior teeth, the resilifer small, subumbonal, not projecting. Length, 4; height, 2.7; diameter, 1.7 mm. Cat. No. 215597, U.S.N.M.

Station 2923, off San Diego, in 822 fathoms, mud.

LEDA PHENAXIA, new species.

Shell small, solid, plump, smooth except for faintly evident incremental lines and delicate radial striulae; periostracum dark olive, immediately under the beaks blackish for a short distance; base evenly arcuate, dorsal slopes nearly straight; beaks nearer the anterior end, full, not pointed, with a short-cordate lunular impression and narrow, elongate escutcheon, neither defined by any sharp boundary; hinge very strong for the size of the shell, with about 8 or 9 long teeth on each side of a rather small strong resilifer. Length, 4.5; height, 3.5; diameter, 1.3 mm. Cat. No. 215596, U.S.N.M.

Station 2923, off San Diego, California, 822 fathoms, mud.

The short blackish patch of periostracum directly between the beaks gives this little shell the aspect of a *Tindaria*, and the strong hinge makes the shell very difficult to open, but the ligament is strictly internal.

LEDA SPARGANA, new species.

Shell small, elongate, inequilateral, pale olivaceous, compressed; prodissoconch conspicuous, otherwise the beaks are low, and about 4 mm. from the anterior end of the shell; sculpture of low concentric ridges, stronger anteriorly, sparser toward the beaks, and obsolete on the dorsal area behind; there is an obscure radial depression anteriorly, and two obscure radial ridges on each side of the impressed escutcheon where the dorsal margin of the valves is prominently elevated; there are about 12 anterior and 18 posterior teeth, the resilifer is small, rotund, and subumbonal; there is a small mesial ridge near the end of the rostrum internally. Length, 12; height, 5; diameter, 2.6 mm. Cat. No. 208897, U.S.N.M.

Station 4367, off Point Loma, San Diego County, California, in 215 fathoms, mud.

LEDA HAMATA Carpenter, 1864.

Variety *limata* Dall. In this variety the valves have the same profile as in the typical form but the strong concentric sculpture, which is so uniform in the northern specimens of this species, is subject to

extraordinary mutations, which taken alone would appear to represent perfectly distinct species. In the extreme form of this variety the surface of the disk is perfectly smooth. In another mutation there are a few very coarse concentric ridges near the umbones. In still another the umbonal region is smooth and the ridges appear near the basal margin only. The keels on the rostrum in typical *limata* are plain, in other specimens there may be successive prominent concentric ridges rising into pustules where they intersect the keels. Almost every combination of these characters may be found in a large series of the species. These fluctuations appear to be connected with the southern habitat, being most violent in specimens collected at La Paz, just inside the Gulf of California. A somewhat similar series of mutations has been noticed in one of the species from the Miocene of Virginia. Cat. No. 211292, U.S.N.M.

Station (of the typical specimens) 2902, off Santa Rosa Island, California, in 50 fathoms.

YOLDIA OLEACINA, new species.

Shell small, plump, smooth except for faint incremental lines, brilliantly polished, of a bright yellow brown with a slight olivaceous tint toward the beaks; egg-ovate, rounded and broader in front, attenuated behind; base broadly arcuate, dorsal margin gently curved; beaks low, 6 mm. from the anterior end; no defined lunule or escutcheon; 13 anterior and 11 posterior hinge teeth, the resilifer subumbonal, cup-like; the pallial line has a slight shallow sinus near the posterior adductor scar. Length, 16; height, 9; diameter, 6 mm. Cat. No. 223407, U.S.N.M.

Arctic Ocean north of Bering Strait, Captain Healy.

This brillant species recalls several of the Arctic species, but does not exactly agree with any of them.

YOLDIA SECUNDA, new species.

Shell large, thin, inequilateral, inflated, subtruncate and recurved behind; color of a light grayish olive, more or less disposed in zones; this shell much resembles *Y. thraciaeformis* Storer, though it does not attain so great a size; it differs by the absence of the oblique elevated posterior ray from the umbones, in being more attenuated behind, and in general more cylindrically inflated; the valves hardly gape in front, and less behind than in that species; the hinge teeth are more numerous and smaller than in *thraciaeformis* of the same length. There are 24 anterior and 20 posterior teeth, the resilifer is similar to but smaller than in the species referred to above, which has 20 anterior and 10 posterior teeth in a valve of the same length. Length, 39; height, 22; diameter, 14 mm. (Cat. No. 107688, U.S.N.M.)

Station 3077, in Clarence Strait, Alaska, in 322 fathoms, mud.

YOLDIA BERINGIANA, new species.

Shell large, thin, smooth, except for lines of growth, brilliantly polished, inequilateral, hardly rostrate, rounded at each end, less compressed behind than *Y. secunda;* color a rich yellowish brown, slightly olivaceous near the umbones; valves closing completely; escutcheon striated, narrower than in *secunda;* beaks very low, 24 anterior and 17 posterior teeth, the resilifer ample, cup-shaped, projecting. The pallial sinus is rather large and rounded. Length, 40; height, 22; diameter, 16 mm. Cat. No. 226195, U.S.N.M.

Station 3607, Bering Sea, off the Pribiloff Islands, in 987 fathoms, mud.

YOLDIA ORCIA, new species.

Shell small, thin, pale olive, brilliantly polished, smooth, equilateral; base deeply arcuate; beaks not prominent, the posterior end slightly compressed, pointed and attenuated, the anterior end rounded; hinge with 8 anterior and 6 very minute posterior teeth, the resilifer subumbonal, extremely small. Length, 4.5; height, 3.5; diameter 2 mm. Cat. No. 111420, U.S.N.M.

Station 2923, off San Diego, California, in 822 fathoms, mud.

This species has no indication of lunule or escutcheon.

YOLDIA SANESIA, new species.

Shell small, thin, plump, pale olivaceous, inequilateral, the anterior end shorter, the beaks 2.6 mm. behind it; base roundly arcuate, dorsal slopes nearly straight, anterior end rounded, posterior end slightly recurved, compressed and bluntly rounded; beaks low, inconspicuous, with no indications of lunule or escutcheon; hinge with 7 or 8 very minute anterior and about 10 posterior teeth, the resilifer subumbonal and minute. Length, 6; height, 4; diameter, 2.5 mm. Cat. No. 223578, U.S.N.M.

Station 4224, in Boca de Quadra, Alaska, in 160 fathoms, mud.

YOLDIA CECINELLA, new species.

Shell minute, polished, smooth, nearly equilateral, the margins arcuate above and below, the anterior end rounded, the posterior more pointed and slightly longer; beaks low and inconspicuous, with neither lunule nor escutcheon indicated; hinge with six or seven minute teeth on each side of the subumbonal, very small resilifer. Length, 5; height, 2.6; diameter, 1.5 mm. Cat. No. 211424, U.S.N.M.

Station 2823, off La Paz, Gulf of California, in about 26 fathoms.

This species is quite close to *Y. orcia,* but is uniformly less acute behind, smaller and more slender.

YOLDIA CAPSA, new species.

Shell very thin, small, polished, smooth, compressed, the beaks hardly rising above the general hingeline; base deeply arcuate, the dorsal margin very slightly convex; anterior end rounded, posterior end slightly broader and flatter, obscurely pointed toward the dorsal level; beaks slightly anterior to the middle line of the shell; hinge with a few very small anterior and posterior teeth; the resilifer subumbonal, not projecting. Length, 4.4; height, 3; diameter, 1.5 mm. Cat. No. 212499, U.S.N.M.

Station 3346, off Tillamook Bay, Oregon, in 786 fathoms.

MALLETIA (MINORMALLETIA) TALAMA, new species.

Shell large, thin, plump, of a uniform oval, with a brilliant, smooth, light yellowish-olive periostracum; beaks low, near the anterior third with about eight V-shaped teeth in front of them on the hingeline and about 36 much smaller teeth behind them; the latter are not obviously V-shaped, are very uniform in size and appearance; the hingeline is thickened under the anterior teeth, but the ligament is strictly external. The shell is slightly wider and more compressed behind the beaks but the difference is very small. Length, 23; height, 15; diameter, 10 mm. Cat. No. 225384, U.S.N.M.

Station 3603, off Pribiloff Islands, Bering Sea, in 1771 fathoms.

MALLETIA (NEILO) FIORA, new species.

Shell small, thin, inequilateral, smooth, polished, pale olivaceous, somewhat compressed, the beaks at 4 mm. behind the anterior rounded end; the base evenly arcuate, the dorsal slopes nearly straight; near the posterior end the profile is obliquely attenuated above and below, terminating in a point; ligament distinctly external with about ten anterior and more numerous posterior teeth. Length, 10.5; height, 5.5; diameter, 3 mm. Cat. No. 207251, U.S.N.M.

Station 2859, southwest of Sitka Bay, Alaska, in 1,569 fathoms.

TINDARIA CALIFORNICA, new species.

Shell small, olivaceous, darker distally, inflated, smooth except for incremental lines, polished, swollen, inequilateral; beaks inconspicuous, with a large escutcheon bounded by an angle of the surface, but no lunule; anterior end rounded, plump, 4 mm. in front of the beaks; posterior end attenuated, bluntly rounded, and slightly recurved, the posterior dorsal slope being somewhat concave; the base evenly arched; hinge with 13 anterior and 18 posterior teeth; ligament strictly external, pallial sinus deep. Length, 10.5; height, 6; diameter, 4.5 mm. Cat. No. 96972, U.S.N.M.

Station 2840, off the Santa Barbara Islands, California, in 276 fathoms, mud.

TINDARIA BRUNNEA, new species.

Shell small, inflated, solid, subtriangular, of a warm yellow brown color; beaks large, prominent, with no distinguishable lunule or escutcheon, the ligament short but wholly external and behind the beaks; the surface sculptured with rather regular fine incremental lines which, toward the margin, appear almost like concentric ripples; there are also very faint radial lines on some parts of the shell; base arcuate, dorsal slopes nearly straight, anterior end rounded, posterior rather bluntly pointed; hinge with about eight anterior and fourteen posterior teeth. Length, 7.5; height, 6; diameter, 4 mm. Cat. No. 226333, U.S.N.M.

Station 3604, Bering Sea, in 1,401 fathoms.

The bright color distinguishes this from the other species at a glance.

TINDARIA MARTINIANA, new species.

Shell small, solid, olivaceous, inflated, subtriangular, inequilateral, the beaks nearer the anterior end; sculpture of fine concentric and still finer radial striae only visible under magnification; beaks full, incurved, 3.5 mm. from the anterior end, a small lanceolate lunule and a narrower and longer escutcheon are indicated only by the brown color of their areas against the pale olive of the shell; shell rounded in front, pointed bluntly behind, the base arcuate, the dorsal slopes nearly straight; hinge with 14 anterior and 16 posterior slender teeth, the ligament entirely external and posterior. Length, 8.6; height, 6.5; diameter, 5 mm. Cat. No. 207318, U.S.N.M.

Station 4425, off the Santa Barbara Islands, California, in 1,100 fathoms; also off Cape San Martin in 218 fathoms.

TINDARIA RITTERI, new species.

Shell small, plump, smooth except for incremental lines, brilliantly polished, pale olive, darker near the margin, rounded in front, inequilateral, slightly recurved, and bluntly pointed and attenuated behind; beaks low, ligament very short and wholly posterior, 10 or 11 slender V-shaped teeth on either side. Length, 7; height, 4; diameter, 2.6 mm., the beaks, 2.5 mm. behind the anterior end. Cat. No. 209396, U.S.N.M.

Station 4325, off La Jolla, California, in 293 fathoms.

TINDARIA DICOFANIA, new species.

Shell small, olivaceous, callistiform, arcuate, with swollen beaks, concentrically uniformly sculptured, nearly equilateral, the anterior end shorter; a small lanceolate lunule and escutcheon present; both ends rounded, base conspicuously arcuate, the posterior end slightly

attenuated; about 11 teeth on each side of the hinge, the ligament wholly external. Length, 4.5; height, 3.2; diameter, 2 mm. Cat. No. 215595, U.S.N.M.

Station 2923, off San Diego, California, in 822 fathoms.

TINDARIA CERVOLA, new species.

Shell small, thin, subtriangular, of a uniform olive color, finely uniformly concentrically sculptured, with a few microscopic radial striulae; base conspicuously arcuate, dorsal slopes nearly straight, the anterior slope shorter, the anterior end rounded, the posterior bluntly pointed, an extremely narrow and small lanceolate lunule and escutcheon present; beaks conspicuous, the prodissoconch visible, whitish; about 10 anterior and 14 posterior teeth, the ligament small, wholly posterior. Length, 4; height, 2.7; diameter, 2 mm. Cat. No. 215594, U.S.N.M.

Station 2923, off San Diego, California, in 822 fathoms.

GLYCYMERIS CORTEZIANA, new species.

Shell solid, white with a brownish periostracum, the surface finely concentrically sculptured, with less conspicuous fine radiating striae, on which the periostracum exhibits ciliated lines; valves moderately compressed, suborbicular, evenly rounded in front and below, somewhat produced behind, the lower margins finely crenulated; beaks small, inconspicuous; area very narrow, closely divaricately grooved; hinge plate broad, with about 12 anterior and 16 posterior teeth. Length, 22; height, 20; diameter, 11 mm. Cat. No. 212431, U.S.N.M.

Station 2918 on the edge of Cortez Bank, California, in 67 fathoms.

GLYCYMERIS MIGUELIANA, new species.

Shell solid, white with sparse zigzag lines of reddish brown and internally often with a touch of brown near the posterior margin; surface smooth except for irregularities of growth; valves suborbicular, anterior side slightly longer, posterior hardly produced; beaks low, area small and divaricately grooved; inner basal margin crenulated; anterior teeth 10–14, posterior 9–12; valves moderately convex. Length, 23; height, 22; diameter, 14 mm. Cat. No. 120775, U.S.N.M.

Station, San Miguel Island, California.

LIMOPSIS SKENIA, new species.

Shell small, finely reticulately sculptured, with a longhaired velvetty periostracum; narrow, high, rather inflated, thin, whitish under the brown periostracum; beaks small, area small, hinge line short, with one outer large and one or two small inner teeth on each side of the resilifer. General form oblique. Length, 7; height, 9.2; diameter, 6.5 mm. Cat. No. 205883, U.S.N.M.

Station 4471, Bowers Bank, Bering Sea, in 30 fathoms.

The peculiar narrow oblique form is so far unique in the genus. The margins are smooth.

LIMOPSIS AKUTANICA, new species.

Shell white, with a golden brown long-haired periostracum, the surface concentrically somewhat irregularly sculptured, the ridges crossed by finer, closer, less conspicuous striae; disk ovate, compressed, with inconspicuous beaks, a very small narrow area and a relatively large resilifer; the inner margins are flat; the hinge plate narrow with about 7 posterior and 9 anterior teeth; interior of the disk finely radially striate. Length, 21; height, 18; diameter, 8 mm. Cat. No. 224263, U.S.N.M.

Station 2842, southeast of Akutan Island, Aleutians, in 72 fathoms.

PTERIA VIRIDIZONA, new species.

Shell small, oval, translucent, sea-green, distributed in narrow darker and lighter zones, sculptured with narrow, very elongate, opake, whitish scales, distributed in radiating lines with wider bare spaces between them; right valve smaller and flatter with a sinus for the byssus; left valve larger with the anterior ear compressed but not sinuate; the hinge line shorter than the shell with a shallow rounded sinus between the posterior ear and the body of the disk; interior with the pearly area small and no denticulations on the hinge line. Length, 25; height, 13; diameter, 5 mm. Cat. No. 172600, U.S.N.M.

Long Beach, California (H. N. Lowe).

VULSELLA PACIFICA, new species.

Shell small, irregular, dark purple margined with white, the surface sculptured with obscure concentric ridges crossed by fine vermiculate radial striations; interior dark purple with white valve margins; resilifer very large and strong, inner valve margins smooth. Length, 9; height, 11; diameter, about 6 mm. Cat. No. 101935, U.S.N.M.

Nicaragua (Thomas Bridges).

The specimen may be young, but it seemed worthy of description, since no species of this genus has hitherto been reported from the Americas.

PSEUDAMUSIUM INCONGRUUM, new species.

Shell small, white, suborbicular, left valve rather flat with short straight hinge line, ears concentrically scaly, sculpture of disk concentric continuous low sharp lamellae, crossed by slightly raised radial lines, conspicuous only at the intersections which form in the

middle of the disk square reticulations with a small conspicuous pustule at each intersection; laterally these are more crowded; right valve concave near the margin, closely regularly concentrically lamellose; anterior ear with five radial lines, coarsely lamellose with a shallow notch and serrate margin. Height, 14; breadth, 15; diameter, 3 mm. Cat. No. 207273, U.S.N.M.

Station 2986, southwest of San Diego, in 684 fathoms.

The sculpture is sparser and partly obsolete near the beaks.

PSEUDAMUSIUM BISTRIATUM, new species.

Shell small, suborbicular, moderately convex, white, thin; left valve finely concentrically, rather distantly lamellose, the lamellae closer and more conspicuous on the subequal ears; radial sculpture of very fine, close-set, uniform almost microscopic elevated lines, which do not reticulate the lamellations; right valve with the concentric, but without the radial sculpture, concave near the margin, the disk about as convex as the other valve, ears subequal, byssal notch short, acute; one or two faint radii on the ear above it. Height, 7; breadth, 7; diameter, 2 mm. Cat. No. 214056, U.S.N.M.

Station 2923, off San Diego, California, in 822 fathoms.

LIMATULA ATTENUATA, new species.

Shell small, narrow, thin, white, radially sculptured with low, rather close-set, rounded threads, crossed near the distal margin with low concentric irregular lamellations so as to give that part of the valve a minutely scabrous effect; the medial radii are broader than the others and radially striate, no mesial sulcus is noticeable but it is clearly indicated on the inside of the valve; beaks low, incurved; area triangular, resilifer large and excavated; hinge margin short, strongly buttressed on each side; valve margin crenulate. Height, 7; width, 3.6; diameter, 4 mm. Cat. No. 220510, U.S.N.M.

Nazan Bay, Atka Island, Aleutian chain.

SEPTIFER BIFURCATUS, new variety, OBSOLETUS.

Shell large, the external sculpture obsolete, the distal part of the valves nearly smooth. Cat. No. 173359, U.S.N.M.

San Diego Bay, mud flats.

MODIOLUS (?POLITUS Verrill var.) PALLIDULUS, new species.

Shell thin, smooth, brilliantly polished, attenuated anteriorly, wide and bluntly rounded behind, divided into two color areas, the dorsal large, translucent with a whitish zigzag reticulation, the ventral opaque white with a yellowish tinge; hinge edentulous, margins entire. Length, 23; maximum height, 11.5; beaks behind the anterior end, 1; diameter, 5 mm. Cat. No. 212746, U.S.N.M.

Station 3197, off San Luis Obispo Bay, in 77 fathoms.

None of the Pacific specimens have the golden yellow color of the Atlantic species and none of them attain the same size. Otherwise the shells are very similar.

DACRYDIUM PACIFICUM, new species.

Shell minute, whitish, much the shape of *Musculus vernicosus* Middendorff, on a minute scale, differing from the Atlantic *D. vitreum* by its smaller size and more elongated outline. Length, 3.6; height, 2.5; diameter, 1.5 mm. Cat. No. 214092, U.S.N.M.

Station 3604, 1,401 fathoms, mud, in Bering Sea.

MUSCULUS NIGER Gray, new variety, OBESUS.

Shell resembling the typical flattish form but markedly more inflated. Length, 60; height, 31; diameter, 18 mm. Cat. No. 223317, U.S.N.M.

Plover Bay near Bering Strait, in 8 to 20 fathoms.

MUSCULUS NIGER Gray, new variety, PROTRACTUS.

Shell resembling the young of the typical form but more inflated and elongated, the sculpture very distinct, the medial area smooth, blackish, the dorsal areas olivaceous. Length, 13; height, 6.5; diameter, 5.5 mm. Cat. No. 222017, U.S.N.M.

North of Nunivak Island, Bering Sea, in 9 fathoms, gravel.

MUSCULUS OLIVACEUS, new species.

Shell small, thin, polished, pale olivaceous near the beaks, growing darker distally; medial area smooth, anterior area with six or seven rather strong radial grooves; posterior area with numerous shallow channeled radii crossed by rather regular slightly elevated concentric lines, giving a silky luster to the surface; beaks inconspicuous, inflated; dorsum arched, base nearly straight, both ends evenly rounded, the posterior slightly wider; interior whitish, the margin crenulated by the sculpture, the beaks very close to the posterior end. Length, 10; height, 6; diameter, 5 mm. Cat. No. 210790, U.S.N.M.

Off Bering Island, in 10 fathoms.

This differs in sculpture, color, and proportions from the young of *M. laevigatus*.

Genus LITHOPHAGA Bolten, 1798.

Section LABIS Dall, 1916.

Type.—Lithophaga attenuata Deshayes.

The typical *Lithophaga* has a clean outer surface; *Diberus* a divaricate plumose posterior incrustation; *Myoforceps*, two crossed conical projections; the present form has on each valve a semicylindrical

smooth appendage of which the distal end is internally flattened and somewhat separated from the appendage of the opposite valve, the ends being rounded.

CRENELLA ROTUNDATA, new species.

Shell small, rounded-quadrate, inflated, with a very thin, dehiscent, pale olive periostracum; beaks central, inconspicuous, with no crenulations beneath them; sculpture of faint incremental lines and obsolete radial striae near the margin; inner margin very delicately crenulate except near the beaks. Length, 4; breadth, 4; diameter, 2 mm. Cat. No. 129305, U.S.N.M.

Station 2849, off Santa Cruz Island, California, in 155 fathoms, sand.

DERMATOMYA BUTTONI, new species.

Shell small, rounded-quadrate, plump, thin, yellowish olive, hardly polished, smooth, with iridescent reflections from under the periostracum when fresh; beaks nearly central, not prominent, hinge teeth normal, strong; interior bluish white, margins entire, pallial sinus shallow. Length, 9.8; breadth, 8; diameter, 6 mm. Cat. No. 194309, U.S.N.M.

Station 3670, Monterey Bay, in 581 fathoms.

DERMATOMYA BERINGIANA, new species.

Shell large, thin, plump, inequilateral, anterior end shorter, base arcuate, anterior end rounded, posterior dorsal slope first convexly slightly arcuate, then obliquely subtruncate to meet the basal curve; beaks prominent, 7 mm. behind the anterior end; surface smooth, except for faint incremental irregularities, iridescent under a pale olive, polished periostracum; beaks slightly prosocoelous, hinge weak, the teeth minute, the ossiculum well developed; interior whitish, the pallial sinus very shallow. Length, 20; height, 14; diameter, 12 mm. Cat. No. 205899, U.S.N.M.

Bowers Bank, Bering Sea, in 557 fathoms.

DERMATOMYA LEONINA, new species.

Shell large for the genus, mactriform, solid, inflated, transverse, with a dull olivaceous periostracum, darker, and concentrically wrinkled on the posterior dorsal area; surface smooth except for fine incremental lines and microscopic radial striulae often obsolete; beaks high, slightly prosocoelous, nearly central; base moderately arcuate, anterior end rounded, dorsal slopes nearly straight, a shallow radial depression on the posterior dorsal area, posterior end subtruncate; hinge weak, ligament deeply inset; hinge teeth almost obsolete; margins entire, pallial sinus shallow, interior feebly iridescent

white. Length, 27; height, 18.5; diameter, 14.6 mm. Cat. No. 122564, U.S.N.M.

Station 3074, off Sea Lion Rock, coast of Washington, in 877 fathoms.

CETOCONCHA MALESPINAE, new species.

Shell small, very thin, with prominent prosocoelous beaks, a very pale yellowish olive periostracum, darker on the posterior dorsal area; in the right valve is a strong radial ridge near the posterior hinge line; surface otherwise smooth and almost polished except for extremely fine radial lines of minute granules only visible under a glass; shell very similar to *Isocardia cor* in form and outline on a very small scale; interior white, the hinge normal but weak. Length. 12.5; height, 10; diameter, 8.5 mm. Cat. No. 212564, U.S.N.M.

Station 2859, southwest of Sitka Bay, Alaska, in 1,569 fathoms.

MYONERA TILLAMOOKENSIS, new species.

Shell extremely thin, fragile, inflated, beaks nearly central (neglecting the rostrum), whitish, the anterior part of the shell with about 20 strong, rounded, concentric ripples which cease posteriorly at the anterior border of the radial sculpture which includes four strong and about fifteen threadlike radial riblets extending from the beaks to the base, behind which is a short, blunt, concentrically feebly striate, truncate rostrum; base arcuate, hinge-line nearly straight, the right margin slightly overlapping the other. Length, 18; height, 12; diameter, 10 mm. Cat. No. 107819, U.S.N.M.

Station 3346, off Tillamook Bay, Oregon, in 786 fathoms.

CUSPIDARIA APODEMA, new species.

Shell small, white, polished, swollen, with a prominent tubular rostrum; inequilateral, the beaks 6 mm. behind the anterior end; the rostrum about 5 mm. long; beaks conspicuous, prosocoelous; the exterior smooth except for incremental lines and wrinkles on the dorsal side of the rostrum; hinge-line nearly straight, anterior end rounding imperceptibly into the semicircular base which is suddenly constricted at the rostrum. Length, 17; height, 10; diameter, 8 mm. Cat. No. 122602, U.S.N.M.

Station 2859, southwest of Sitka Bay, Alaska, in 1,569 fathoms. Near but not *C. obesa* Lovèn, of the Atlantic.

CARDIOMYA BALBOAE, new species.

Shell small, whitish with a yellowish periostracum; inequilateral, rostrate, somewhat inflated, posterior end shorter, anterior ovately rounded; beaks small, pointed, not elevated; sculpture of anterior half of the disk faintly irregularly concentrically rippled; behind this 12 to 15 radial, more or less alternated threads extending to the

margin from the umbones and increasing in strength backward; behind the last and strongest an excavated concentrically striated space marks the beginning of the rostrum which beyond that has four or five faint radial threads and is abruptly truncate. Length 8.9; height, 5; diameter, 3.2 mm. Cat. No. 208650, U.S.N.M.

Station 2911, on the edge of Cortez Bank, in 60 fathoms.

CALYPTOGENA ELONGATA, new species.

Shell resembling a *Tagelus* in form, elongate compressed, white under a yellowish periostracum, rounded at both ends, base nearly straight; anterior dorsal slope short, beaks low, small, pointed, about 10 mm. from the anterior end of the valves, posterior slope long, gently arcuate; surface devoid of any sculpture except rather conspicuous incremental lines; ligament strong; interior porcellanous white, pallial line entire; hinge teeth small, normal. Length, 44; height, 17.5; diameter, 10 mm. Cat. No. 110774, U.S.N.M.

Off Point Loma, California, in 275 fathoms, at station 4432.

This can be distinguished at once from the *C. pacifica* by its elongate form and more delicate and compressed shell.

MIODONTISCUS MERIDIONALIS, new species.

Shell small, solid, white, with 9 or 10 strong rounded adjacent radial ribs cut by about as many concentric incised lines, the segments of the ribs more or less swollen; beaks small, erect, no visible lunule, or escutcheon; teeth strong; inner basal margin coarsely crenulate. Length, 4; height, 4; diameter, 2 mm. Cat. No. 208948, U.S.N.M.

Station 4309, off Point Loma, California, in 78 fathoms.

Smaller, less compressed, and more conspicuously sculptured than the northern *M. prolongatus*.

MILNERIA KELSEYI, new species.

This species has been confused from the beginning with *M. minima* Dall, and is best diagnosed comparatively. The latter has the radial sculpture, especially the four strong ribs of the posterior part, coarsely and conspicuously imbricated, with no very marked keel from the umbo to the posterior basal angle. The shell in a general way is in all respects less angular. *M. kelseyi* has a conspicuous ridge extending from the umbo to the posterior basal angle; the imbricated ribs are less conspicuous, the scales smaller and less prominent, the anterior end more attenuated, the shell wider and more depressed, and is apparently larger when mature. Length, 11; height, 3; diameter, 4.5 mm. Cat. No. 253037, U.S.N.M.

On *Haliotis* shells, Central California.

M. minima has a rather large conspicuous impressed lunule and smaller narrow escutcheon; *M. kelseyi* an extremely small lunule and an escutcheon larger and more conspicuous.

THYASIRA CYGNUS, new species.

Shell white with a pale straw-colored periostracum, moderately convex, sharply compressed behind, the beaks prominent, prosocoelous over a large cordate lunule, the escutcheon long and very narrow, bounded by a sharp keel; general form rounded quadrate, the compressed posterior area narrow and basally falling notably short of the basal curve of the disk; posterior slope slightly convexly arcuate; anterior distinctly concave, meeting the basal arc in an obtuse angulation. Length, 14; height, 13.5; diameter, 8.5 mm. Cat. No. 222618, U.S.N.M.

Station 4224, Cygnet Inlet, Boca de Quadra, Alaska, in 160 fathoms.

THYASIRA TRICARINATA, new species.

Shell chalky white, produced below, with pointed prosocoelous beaks over a deeply impressed ovate lunule bounded by a sharp carina; escutcheon long, narrow, lanceolate, the valve margins rising as a sharp keel in the middle, the outer border very prominently keeled, outside of which is a similarly shaped excavated area also bordered by an angular keel; still outside of this there is a compressed area with no distinct anterior boundary except an obscure ray near the umbones; over this area the surface is concentrically striated, the rest of the disk being nearly smooth; hinge very feeble, ligament linear. Length, 15; height, 18; diameter, 10 mm. Cat. No. 209321, U.S.N.M.

Station 4425, off the Santa Barbara Islands, California, in 1,100 fathoms.

ERYCINA CATALINAE, new species.

Shell small, inequilateral, the anterior side shorter, rounded, the base nearly straight; posterior side also rounded, slightly attenuated, the dorsal slope convex but descending; hinge strong, the teeth well developed; the beaks well developed, not prominent, the surface smooth except for faint incremental lines, covered with a light yellowish-brown dull periostracum. Length, 2.5; height, 2; diameter, 1.3 mm. Cat. No. 210879, U. S.N. M.

Catalina Island. California, Brannan.

ERYCINA? CORONATA, new species.

Shell small, white, rounded quadrate, nearly equilateral, the surface finely concentrically striated; basal margin nearly straight; ends rounded, the posterior a little produced basally, the dorsal slopes similar, slightly descending, with at each end two to four minute elevated spinules. Length, 4; height, 3; diameter, 1.2 mm. Cat. No. 225193, U.S.N.M.

Off South Coronado Island, in 3 to 6 fathoms, Dr. F. Baker. Only one left valve was obtained.

ERYCINA BAKERI, new species.

Shell small, white with a pale yellowish periostracum, subquadrate, inequilateral, the anterior end shorter; hinge line short, straight, at the outer extremities usually a small spinule, beaks pointed, the prodissoconch visible; from the beak extends a wide depression obliquely backward to the middle of the base, becoming more defined distally; at the base in the adult it is strongly marked and emphasized by a rounded sulcus in the margin, behind which the surface rises into a rounded ridge armed with one or more elevated short lamellae, and having its basal termination produced into a sort of hook; hinge rather feeble, valves rather compressed. Length, 6.3; height, 4.5; diameter, 2 mm. Cat. No. 225192, U.S.N.M.

Off South Coronado Island, in 3 to 6 fathoms, Dr. F. Baker.

This remarkable little shell doubtless owes its curious modifications to a commensal habit of living attached to some other animal—a crustacean or annelid.

ERYCINA BALLIANA, new species.

Shell small, with the outline of a very compressed *Kellia*, white with a very pale yellowish periostracum, concentrically microscopically threaded, the threads occasionally becoming microscopically lamellar; valves nearly equilateral, the anterior part slightly longer, base evenly arcuate, the posterior end somewhat attenuated. Length, 3; height 2.9; diameter, 1.7 mm. Cat. No. 225191, U.S.N.M.

Off South Coronado Island in 3 fathoms, Dr. F. Baker. Named in honor of Mrs. Paula Ball, of the Conchological Club of Los Angeles, California.

ERYCINA CHACEI, new species.

Shell small, compressed, rounded-quadrate; nearly equilateral, the anterior end slightly shorter; beaks low, pustular, minute; dorsal margin nearly straight, basal margin gently arcuate; surface finely concentrically striate, whitish under a pale ashy periostracum, both ends nearly evenly rounded, hinge very feeble. Length, 5.3; height, 3.5; diameter, 1.8 mm. Cat. No. 211219, U.S.N.M.

Station 4343, off the South Coronado Island, in 155 fathoms. This shell may eventually prove to be a *Pseudopythina*. Only one right valve was obtained. It is named in honor of Mr. and Mrs. E. P. Chace, of Los Angeles, California.

ERYCINA SANTAROSAE, new species.

Shell small, compressed, whitish, with a thin pale brownish dull periostracum; profile approaching *E. balliana* but more elongated, and the surface smooth, almost polished and without the microscopic concentric sculpture; evenly ovate, nearly equilateral, the anterior end a

trifle shorter; beaks low, pustular, the prodissoconch very small but distinct. Length, 4; height, 3.5; diameter, 1.5 mm. Cat. No. 194339, U.S.N.M.

Santa Rosa Island, California.

ANISODONTA? PELLUCIDA, new species.

Shell minute, white, pellucid, rounded triangular, smooth and polished; beaks prominent, dorsal slopes convexly arcuate behind, straighter in front; base arcuate, valves moderately arcuate with entire margins; hinge with developed anterior and posterior laterals and two cardinals, the anterior tooth bifid. Length, 2.3; height, 2; diameter, 1.3 mm. Cat. No. 208475, U.S.N.M.

Monterey Bay, California.

The generic place of this minute shell is doubtful, but the form is distinctly like *Eucharis*, though the hinge appears to differ.

ROCHEFORTIA FERRUGINOSA, new species.

Shell small, white, thin, subdonaciform, compressed, invariably coated with a ferruginous layer like some species of *Axinulus*, inequilateral; anterior side longer, apical angle about 90; both ends rounded base arcuate. Length, 4.5; height, 3.25; diameter, 1.5 mm. Cat. No. 214413, U.S.N.M.

San Francisco Bay.

ROCHEFORTIA BERINGENSIS, new species.

Shell large for the genus, oval, white with an olivaceous periostracum, thin, somewhat compressed, sculptured rudely with low irregular concentric ridges; inequilateral, posterior end longer, both rounded; beaks not prominent, hinge small and feeble, except that the resilium and its attachments are rather large. Length, 11.5; height, 10; diameter, 4 mm. Cat. No. 210951, U.S.N.M.

Bering Island, Bering Sea (Grebnitzsky).

ROCHEFORTIA GREBNITZSKII, new species.

Shell small, translucent, polished, whitish; nearly equilateral; general shape that of *Bornia*, but without the brilliant surface; sculpture of fine concentric lines visible under a glass, which render the surface dull; beaks rather prominent, hinge weak. Length, 3.25; height, 2.5; diameter, 1.3 mm. Cat. No. 207258 *a*, U.S.N.M.

Bering Island, Bering Sea (Grebnitzsky).

This may ultimately prove to be a *Bornia*.

ROCHEFORTIA GOLISCHI, new species.

Shell subquadrate, compressed, thin, white, very inequilateral; the anterior end very short, beaks low, 1 mm. behind the anterior

end; posterior end rounded almost exactly like the anterior, base gently arcuate; surface polished, minutely concentrically rippled; prodissoconch visible; hinge weak, the resilifer large, obliquely inclined backward. Length, 6; height, 5.5; diameter, 2.5 mm. Cat. No. 210876, U.S.N.M.

Station 2900, off Santa Rosa Island, California, in 13 fathoms. Named in honor of Mr. W. H. Golisch, of the Los Angeles Conchological Club.

PSEUDOPYTHINA MYACIFORMIS, new species.

Shell small, myaciform, plump, nearly equilateral, the posterior end slightly shorter, wider, and rounded; anterior end more attenuated; surface finely concentrically threaded, but obscured by an habitual coating of a blackish color, probably manganese dioxide; the shell underneath it is yellowish white; hinge weak, the ligament carrying a long, very narrow, lithodesma. Length, 8.5; height, 5.5; diameter, 3 mm. Cat. No. 133235, U.S.N.M.

Port Orchard, Puget Sound. The young shells are proportionately shorter.

TRIGONIOCARDIA EUDOXIA, new species.

Shell small, mottled with lighter and darker rose-color, suborbicular, inflated, strongly sculptured; radial sculpture of 15 sharp angular ribs with subequal interspaces, the keel of the ribs sparsely, regularly, minutely pustular; on the posterior dorsal area are six additional smaller more closely pustular riblets; the interspaces in all are finely concentrically rugose; the hinge is strong; the interior margins deeply sulcate in harmony with the radial sculpture; the central part of the interior is whitish. Length, 9; height, 9; diameter, 8 mm. Cat. No. 208590, U.S.N.M.

Station 3020, Gulf of California, in 7 fathoms.

PROTOCARDIA PAZIANA, new species.

Shell small and delicate, resembling *P. panamensis* Dall, but smaller, more delicate, more elongated, and with the spinose posterior sculpture much more prominent when preserved intact; sculpture of about 40 anterior minutely nodulous ribs, each giving the effect of a string of beads, and to the interspaces of punctation; there are about 22 ribs on the posterior area, which, when intact, carry close-set spinules; the inner margins are sharply serrate; the hinge margin near the umbones has a tinge of crimson, otherwise the shell is yellowish white. Length, 10; height, 8.6; diameter, 6 mm. Cat. No. 211618, U.S.N.M.

Station 2828, off La Paz, Gulf of California, in 10 fathoms.

CARDIUM DULCINEA, new species.

Shell obliquely ovate, strongly radially sculptured with about 22 rounded ribs with narrower not channeled interspaces; the more

anterior ribs are flattened; between the last six in the narrow interspaces is a minute undulation which becomes obsolete as the shell grows; the color of the shell is ivory white, more or less concentrically mottled with reddish brown; interior white, channeled in harmony with the radial sculpture, the margins, especially behind, deeply sulcate; beaks prominent, conspicuously incurved. Length, 43; height, 52; diameter, 36 mm. Cat. No. 193824, U.S.N.M.

Real Llejos, Gulf of Dulce, Central America.

SAXIDOMUS GIGANTEUS Deshayes, 1839.

New variety *brevis*. Shell short, subtriangular, small in comparison with type and much less elongated. Length, 60; height, 50; diameter, 33 mm. Cat. No. 204020, U.S.N.M.

Mole Harbor, Admiralty Islands, Alaska, Mrs. Stephens.

PROTOTHACA STAMINEA, new variety SPATIOSA.

Shell large, heavy, rounded quadrate, inequilateral, the beak behind the anterior end 18 mm.; yellowish or brownish white without markings; sculpture of simple, similar, narrow radial ribs with narrower interspaces, except on the posterior dorsal area where there are a few wider ribs with deeper interspaces; inner margins finely crenulate; pallial sinus deep, narrow, nearly horizontal. Length, 80; height, 67; diameter, 50 mm. Cat. No. 151562, U.S.N.M.

Coos Bay, Oregon, Dall.

PSEPHIDIA BRUNNEA, new species.

Shell small, rounded triangular, moderately convex, brown, pale yellow with zigzag brown reticulation, or even pale yellowish with only traces of red or brown on the hingeline; surface apparently smooth, with a dull silky effect, which on magnification is seen to be due to minute concentric close-set threadlike sculpture; beaks prominent, prodissoconch minute but distinct; hinge normal, strong; inner margins entire, pallial sinus shallow, irregular. Length, 3.7; height, 3; diameter, 2 mm. Cat. No. 109469, U.S.N.M.

Catalina Island, California, in 16 fathoms, Dall.

The shells are often crowded with nepionic young as in *Sphaerium*.

MACOMA BROTA, new name.

This is *Tellina edentula* Broderip and Sowerby, 1829, not of Spengler, 1793; and in part *T. lata* of Middendorff, 1851, not of Gmelin, 1792.

The following form would seem to be specifically distinct were there not a few intermediate specimens:

MACOMA BROTA, new variety, LIPARA.

Shell resembling *brota* but more rotund, less rostrate, with a wider and rounder anterior end, shorter and more rounded posterior end, and more polished surface. The respective measurements are as follows, in millimeters: 219,461; *M. brota:* Height, 53; length, 74; diameter, 22; posterior end, 32. 223,032; *M. lipara*: Height, 57; length, 74; diameter, 25; posterior end, 33. Cat. No. 223032, U.S.N.M.

Both have the same distribution south of Bering Strait, but I have not seen *lipara* from Arctic waters. Both reach Puget Sound.

MACOMA INQUINATA Deshayes, 1854.

New variety *arnheimi*. Shell resembling the typical *inquinata* but shorter, and relatively more plump; the beaks 15 mm. behind the anterior end; the basal margin somewhat produced; the rostration shorter, less pronounced and less obliquely twisted. Length, 38; height, 30; diameter, 15 mm. Cat. No. 122537, U.S.N.M.

Kodiak Island, Alaska, Arnheim.

MACOMA QUADRANA, new species.

Shell small, white, polished, intermediate between *M. carlottensis* Whiteaves, and *M. inflatula* Dall, but smaller than either; periostracum pale straw color, slightly iridescent, microscopically concentrically striated; anterior end larger, posterior end short, obliquely subtruncate, the rostrum slightly bent to the right; the right valve a little flatter than the left; two faint low riblets extending from the beaks to the posterior basal angle; hinge very weak, pallial sinus deep and high. Length, 19; height, 13.5; diameter, 7 mm. Cat. No. 225421, U.S.N.M.

Boca de Quadra, Alaska. Type-specimens from off Point Conception at station 2892, in 284 fathoms

MACOMA TRUNCARIA, new species.

Shell small, subquadrate, white, nearly equilateral, the posterior end slightly shorter, attenuated subtruncate; basal margin nearly straight, anterior end evenly rounded, beaks not prominent, dorsal slopes subequal, the posterior steepest; sculpture only of incremental lines irregularly prominent; hinge teeth feeble; interior chalky white, the pallial sinus reaching only to the vertical of the beak, rounded, free from the pallial line. Length, 15; height, 10; diameter, 4 mm. Cat. No. 210916, U.S.N.M.

Arctic coast between Cape Halkett and Garry River.

ERVILIA CALIFORNICA, new species.

Shell small, ovate, white with a rosy flush, inequilateral, the posterior end shorter; the beaks inconspicuous, the ends rounded, the

basal margin arcuate; sculpture of fine close-set regular, uniform concentric threads over the whole surface; hinge strong, pallial sinus small. Length, 7; height, 4.5; diameter, 2 mm. Cat. No. 151419, U.S.N.M.

San Pedro, California, Bridwell.

MACTRELLA CLISIA, Dall, 1915.

Shell large, white, with a thin, dehiscent periostracum, conspicuously arcuate, inflated, and egregiously keeled around the posterior dorsal slope; anterior end produced, attenuated, rounded; beaks very high, notably prosocoelous; posterior slope sharp, posterior end flattened, the flat area bordered with a high keel, in front of which is a marked constriction; the flat area is divided by an elevated ray into two nearly equal parts which are somewhat excavated; the valve margins near the beaks prominently produced; sculpture only of lines of growth which are fairly conspicuous; hinge line extremely short, pallial sinus reaching only to the vertical from the posterior lateral teeth, the posterior end with an oval gape. Length, 88; height, 66; diameter, 32 mm. Cat. No. 271481, U.S.N.M.

Type from Manzanillo, Mexico. Range thence to Santa Elena, Ecuador.

This remarkable shell is more like the West Indian species than it is to *M. exoleta* of the Pacific coast, but all its characters are, as it were, exaggerated to a fantastic extent.

SPHENIA TRUNCULUS, new species.

Shell short, whitish with a dirty ash-colored periostracum, rude and more or less distorted, abruptly truncate, almost equilateral, the anterior portion swollen, the posterior part attenuated. Length, 7; height, 4.3; diameter, 4 mm. Cat. No. 160116, U.S.N.M.

San Diego, California, among barnacles on the wharf piles.

SPHENIA PHOLADIDEA, new species.

Shell small, thin, white, with a blackish periostracum, which is conspicuously laminate on the posterior dorsal area; very inequilateral, the anterior side shorter, the beaks inconspicuous, 4 mm. behind the anterior end; sculpture of rude incremental lines, posterior end abruptly truncate, hardly attenuated; pallial sinus rounded, not reaching the vertical of the beaks; hinge with a prominent toothlike projection in the right valve before, in the left valve behind the resilifer. Length, 12; height, 5.3; diameter, 4 mm. Cat. No. 2581, U.S.N.M.

Santa Barbara, California, Major Rich.

CORBULA PORCELLA, new species.

Shell small, ashy white, inequivalve, the left valve smaller; inequilateral, the posterior end larger; rounded in front, pointed behind;

a prominent angle separates the posterior dorsal area from the rest of the disk; surface concentrically evenly threaded, the threads a little more pronounced on the dorsal area; an obscure almost microscopic radial striation is sometimes apparent; the siphons protrude beyond the rostrum with a dense covering of wrinkled periostracum; interior white, hinge normal, the basal margin of the right valve partly overlapping that of the left valve; pallial sinus obsolete. Length, 8.5; height, 4; diameter 4.5 mm., but the shell is often larger. Cat. No. 97039, U.S.N.M.

Station 2838, off Lower California, in 44 fathoms, mud. The species extends northward to the Santa Barbara Islands, California.

CORBULA KELSEYI, new species.

Shell rather large, rounded triangular, whitish, heavy, not inflated; the surface sculptured by low concentric lamellae, a little more prominent near the posterior end of the shell, separated by equal or slightly wider interspaces crossed by fine radial threads which do not crenulate the lamellae; there is no defined posterior dorsal area or keel; interior with a deep anteriorly rounded pallial sinus, fused with the pallial line below for the greater part of its length. There seems to be a small narrow lunular area in the left valve. Length, 16; height, 10; diameter of left valve, 3 mm. Cat. No. 120691, U.S.N.M.

Catalina Island, California.

Named in honor of Prof. F. W. Kelsey of San Diego.

PANOMYA ARCTICA Lamarck, new variety, TURGIDA.

Shell very similar to the North Atlantic form but very much more capacious and larger. Length, 90; height, 60; diameter, 48 mm. Cat. No. 151224, U.S.N.M.

This form is common to the Aleutian Islands, and eastward as far as the Shumagins. The type-specimen is from Popoff Strait in the Shumagin group, Alaska.

PANOMYA BERINGIANA, new species.

Shell resembling *P. arctica* Lamarck, in a general way, but thinner, less cylindrical, much larger, and proportionately shorter. Length, 130; height, 80; diameter, 50 mm. A single valve reaches a length of 150 and a height of 110 mm. Type-specimen, Cat. No. 212875. U.S.N.M.

Station 3529, near the Pribiloff Islands, in 56 fathoms. Eastern Bering Sea in general.

SAXICAVELLA PACIFICA, new species.

Shell small, thin, white, with a pale olive dehiscent periostracum; inequilateral, the anterior end shorter and more attenuated, the posterior longer, more vertically expanded; surface sculptured only by

incremental lines; a rounded ridge extends from the inconspicuous beak to the posterior basal margin, but there is no keel or angle; interior distinctly pearly, hinge as in the Atlantic species. Length, 5.8; height, 3; diameter, 2 mm. Cat. No. 209912, U.S.N.M.

Station 4356, 131 fathoms, off Point Loma, San Diego County, California.

PHOLADIDEA SAGITTA (Stearns Ms.).

Shell closely similar to *P. penita* Conrad, but with shorter proportions, measured longitudinally, and with a corresponding widening of the dorsal appendages of the adult. In all other respects it resembles *P. penita*, of which it is doubtless a variety. The name having found its way into collections, it was thought best to give it an acknowledgable status. The type-specimen comes from Monterey, California. Cat. No. 63312, U.S.N.M.